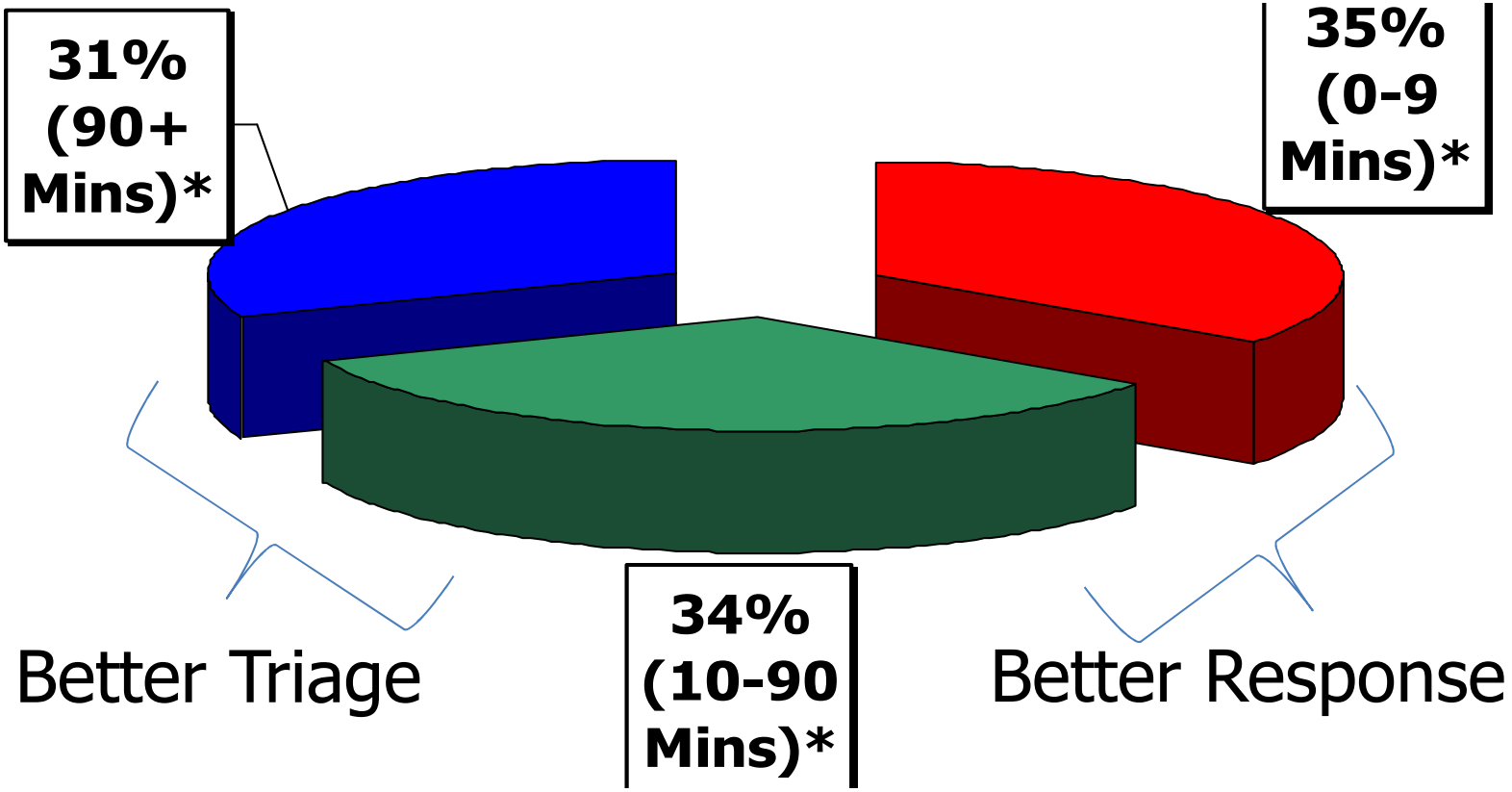
Want Zero Deaths? Engage the System that Saves Lives: EMS

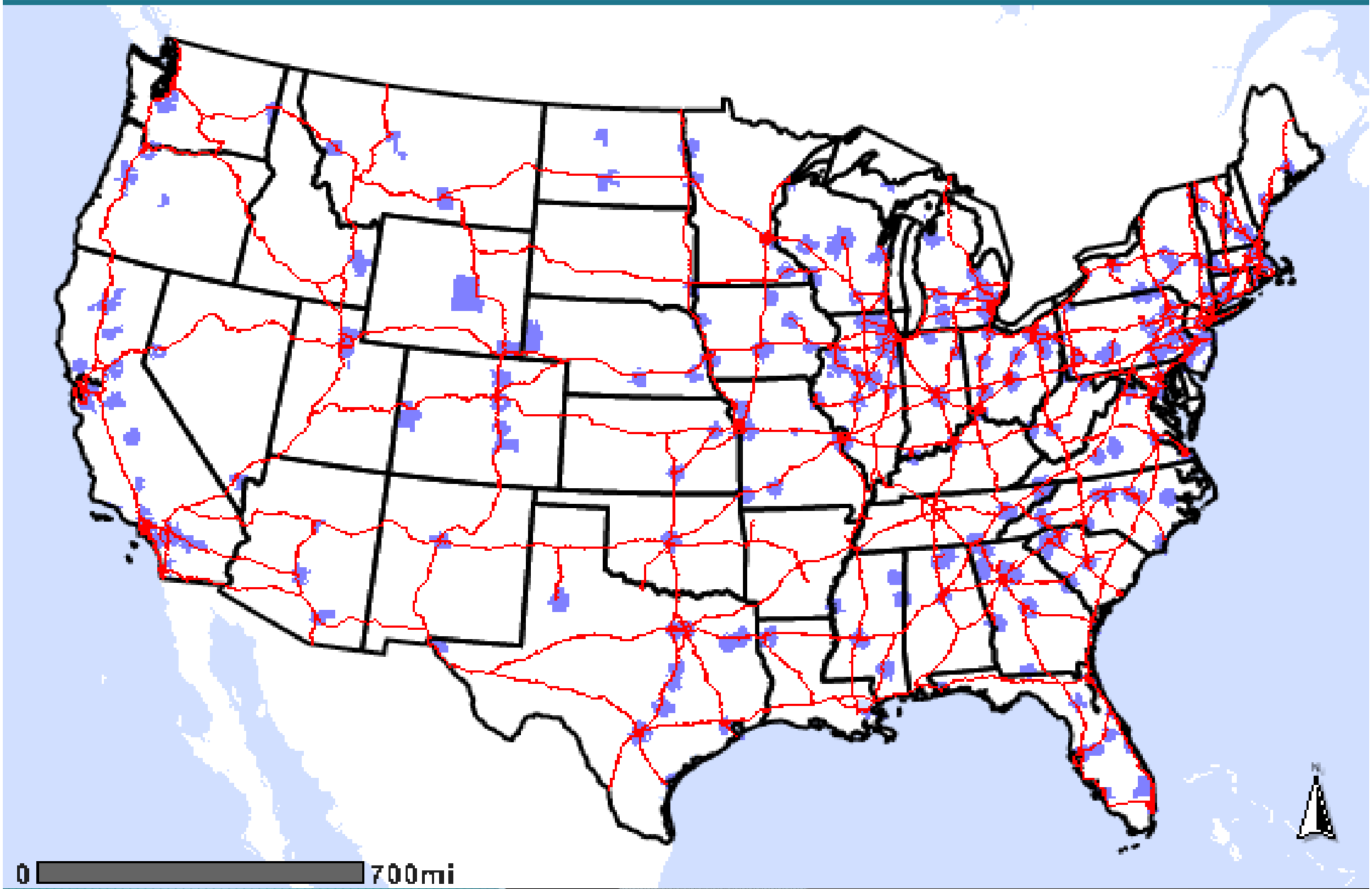
18th Annual Michigan Traffic Safety Summit
March 28, 2013

Dia Gainor, NASEMSO Executive Director

Fatalities by Time of Death After Crash



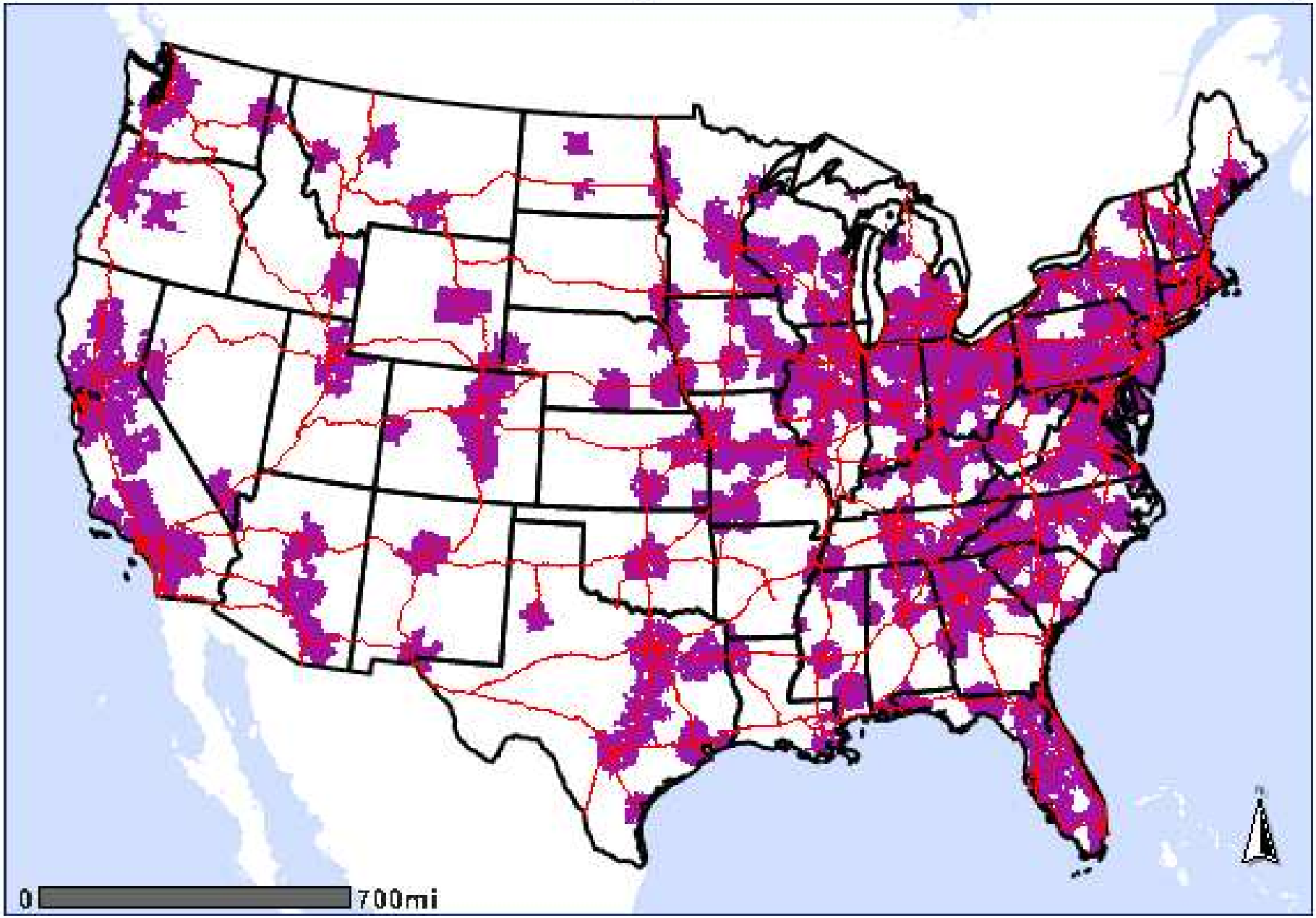
*Based on FARS 2005 Data, Slide Courtesy of NHTSA OEMS

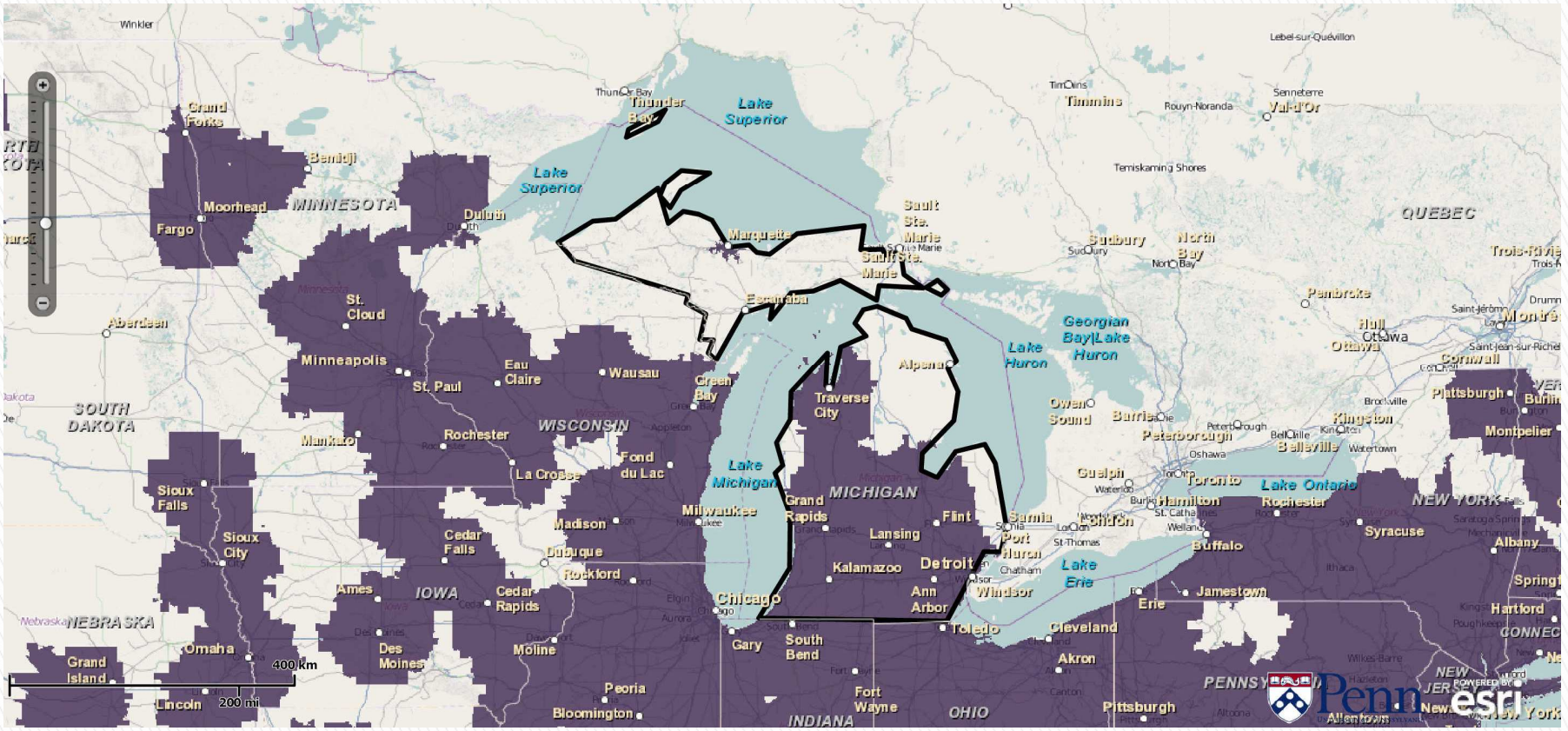

0
700mi

Level I/II Trauma Center Coverage	% Popn	% Land
Existing System:	83.13%	28.68%

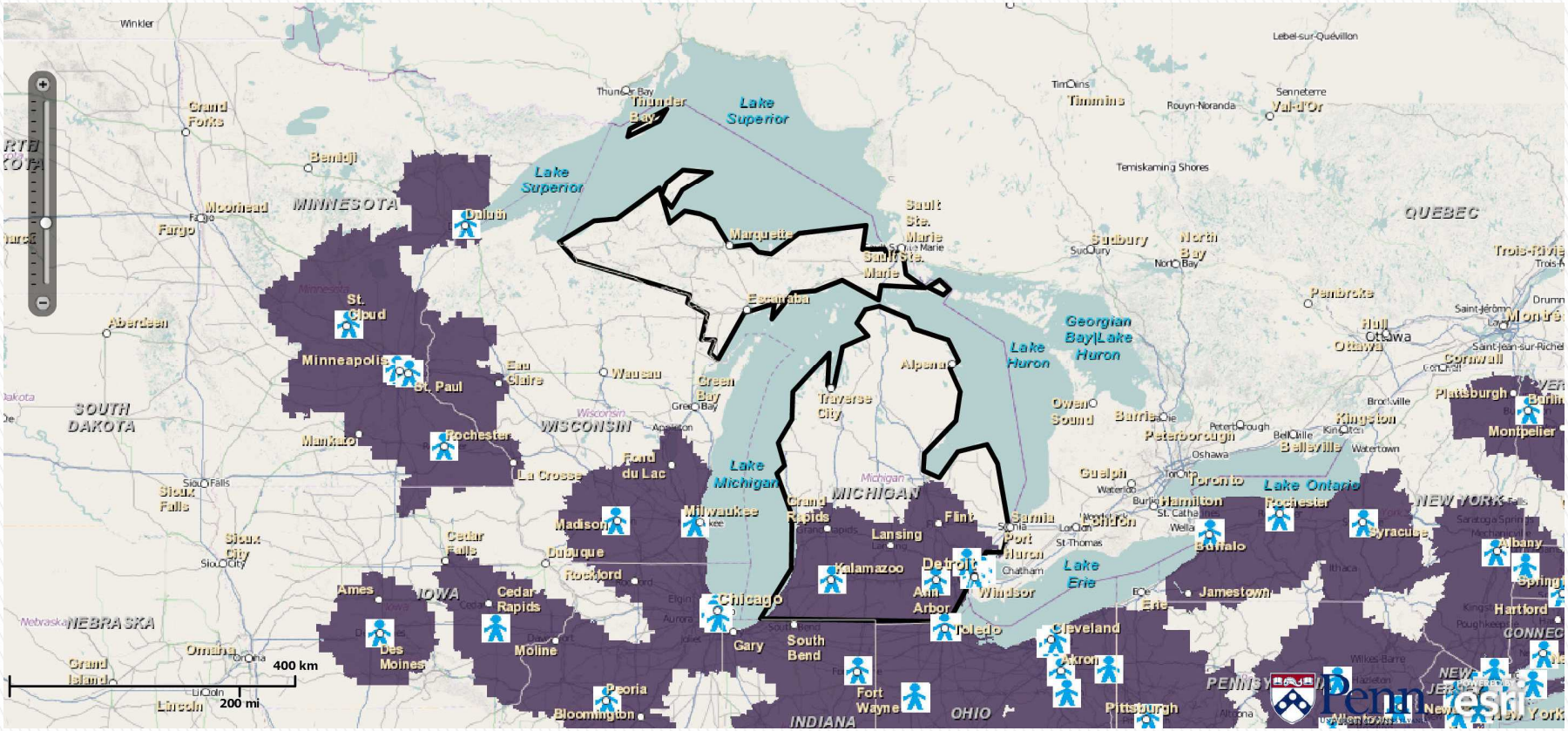
Legend

Helicopter Ambulance Either

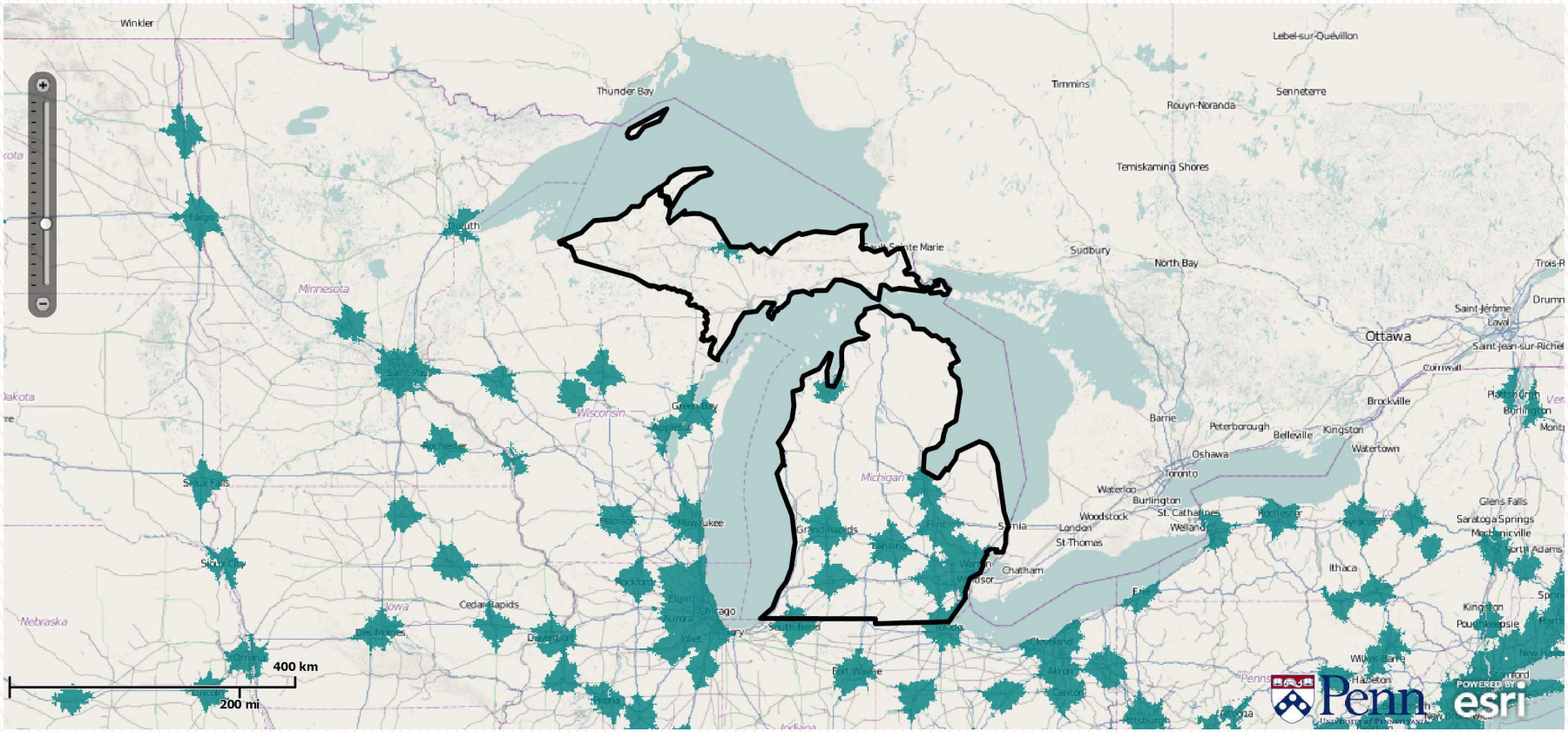




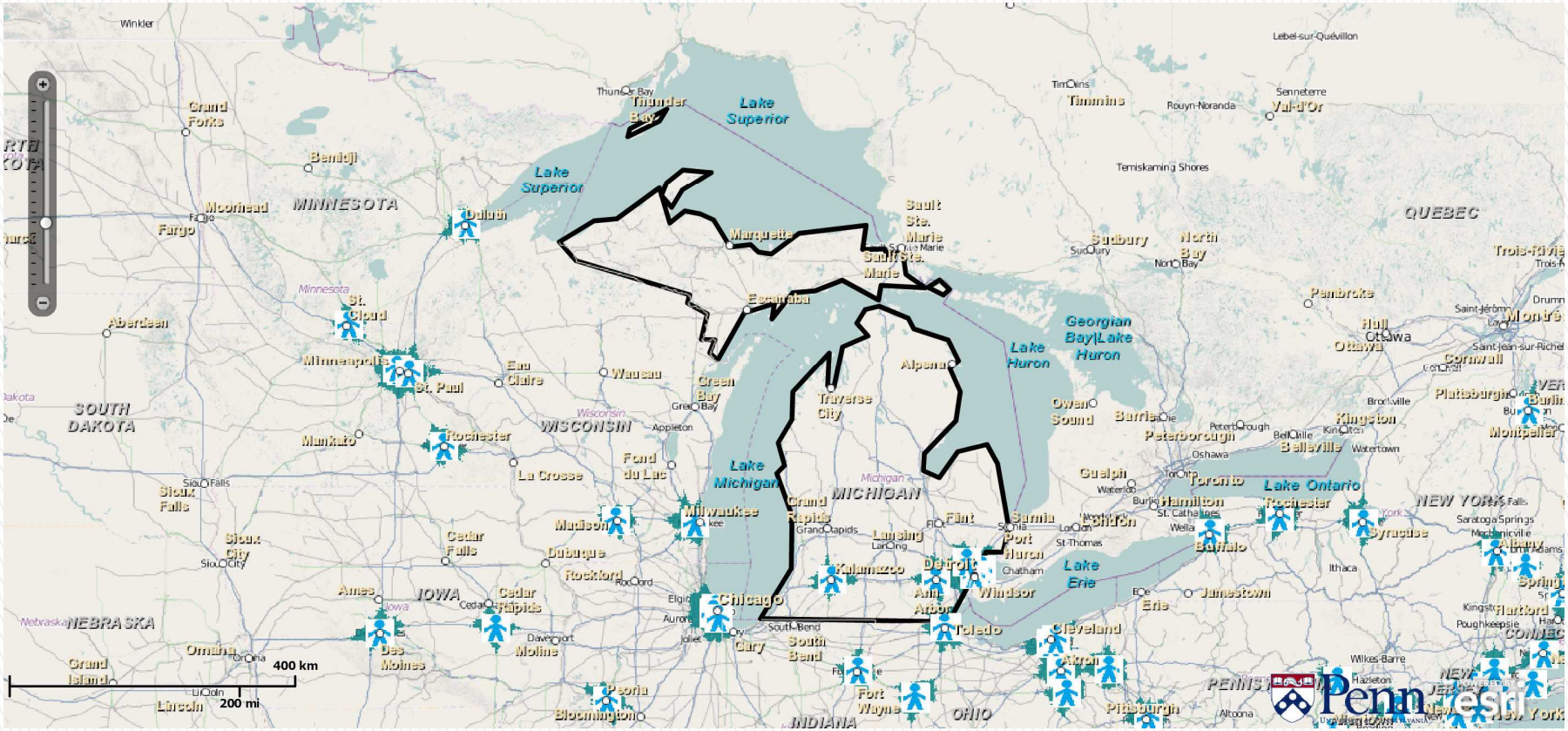
Adult Trauma Centers~60 Minute Transport Time
by Helicopter
(52% of land mass, 92% of the general population)



Pediatric Trauma Centers~60 Minute Transport Time
by Helicopter
(31% of land mass, 81% of the general population)



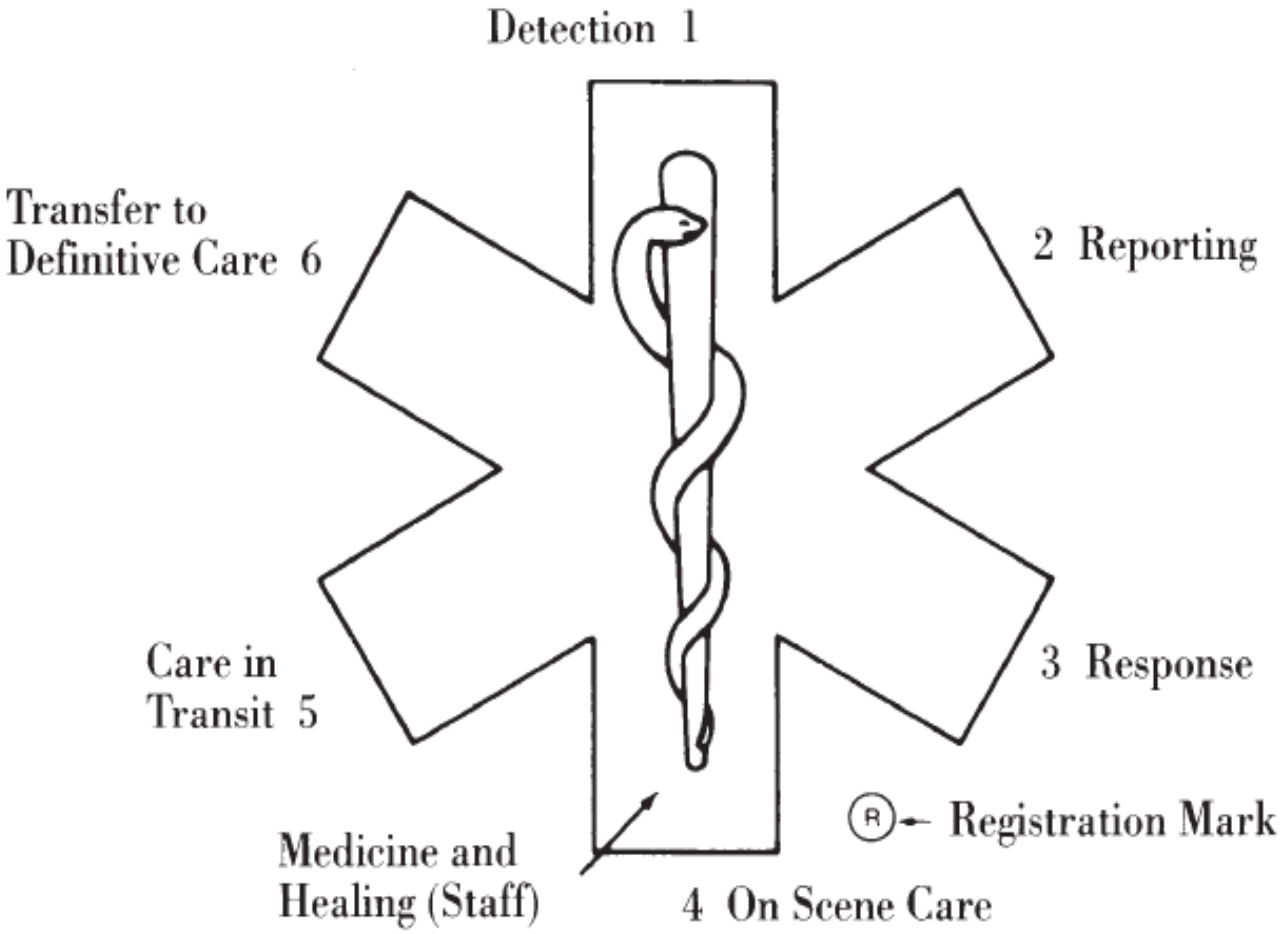
Adult Trauma Centers~60 Minute Transport Time
No Helicopter
(14% of land mass, 68% of the general population)



Pediatric Trauma Centers~60 Minute Transport Time
(5% of land mass, 44% of the general population)

EMERGENCY
MEDICAL TECHNICIAN

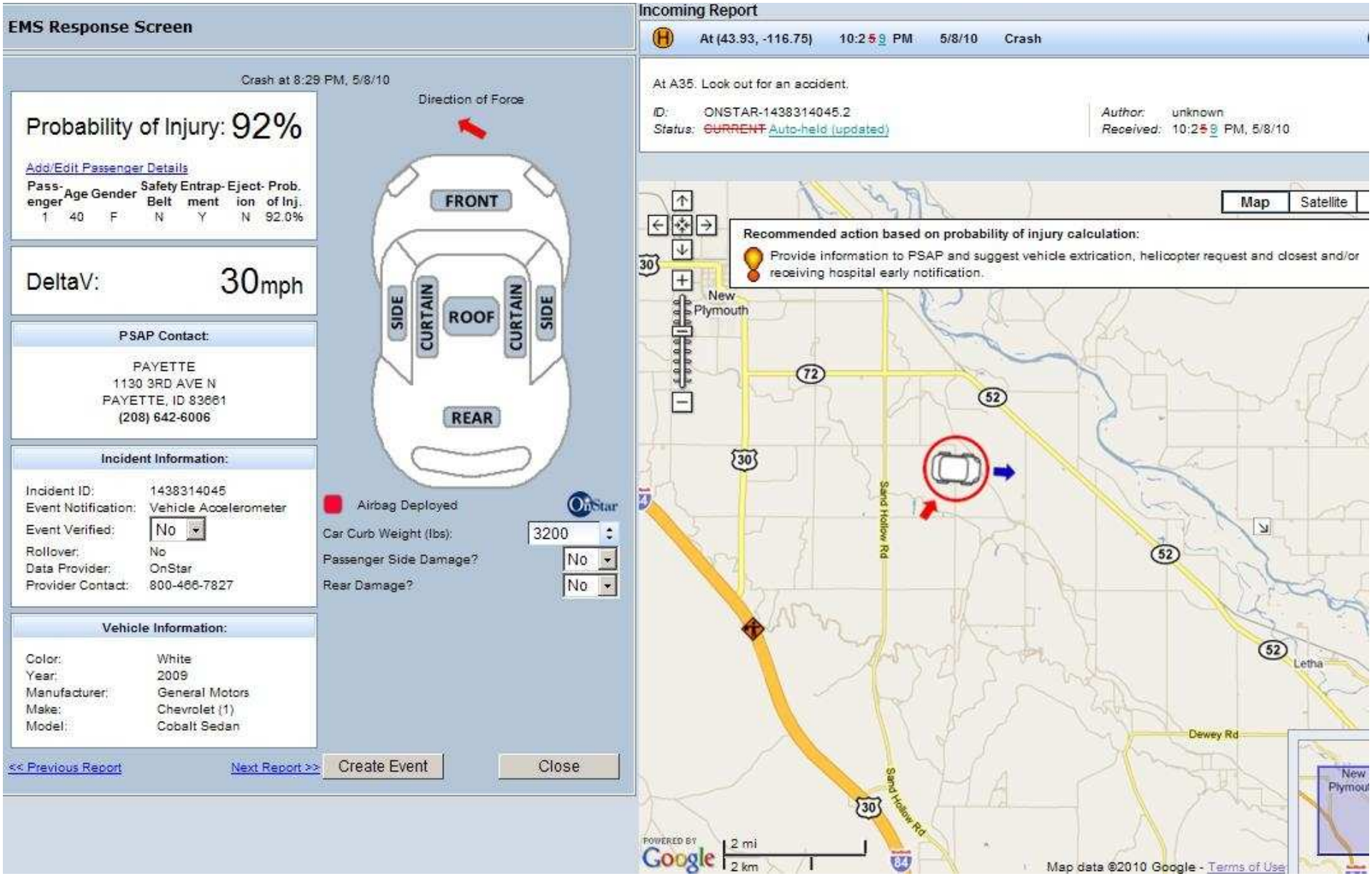
Organizing Ideas via the Star of Life



DETECTION SYSTEMS

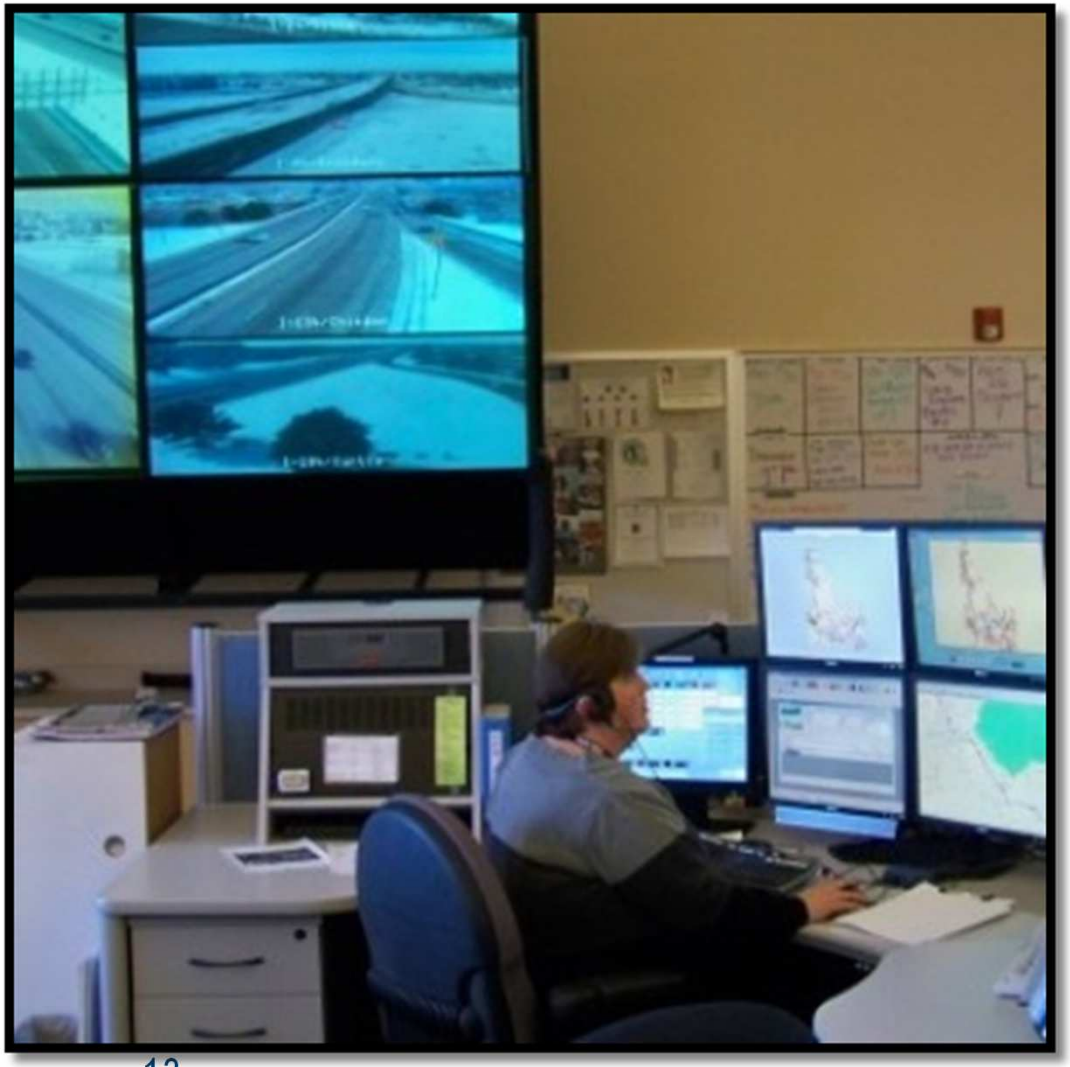
- Telematics Data Definitions and Transmission Standards
- Advanced Automatic Collision Notification
- AACN Predictors for the Need for Vehicle Extrication

CARS Mayday Module



9-1-1 ACCESS AND CAPABILITIES

- Enhanced 9-1-1 and Phase II Compliance
- Next Gen 9-1-1

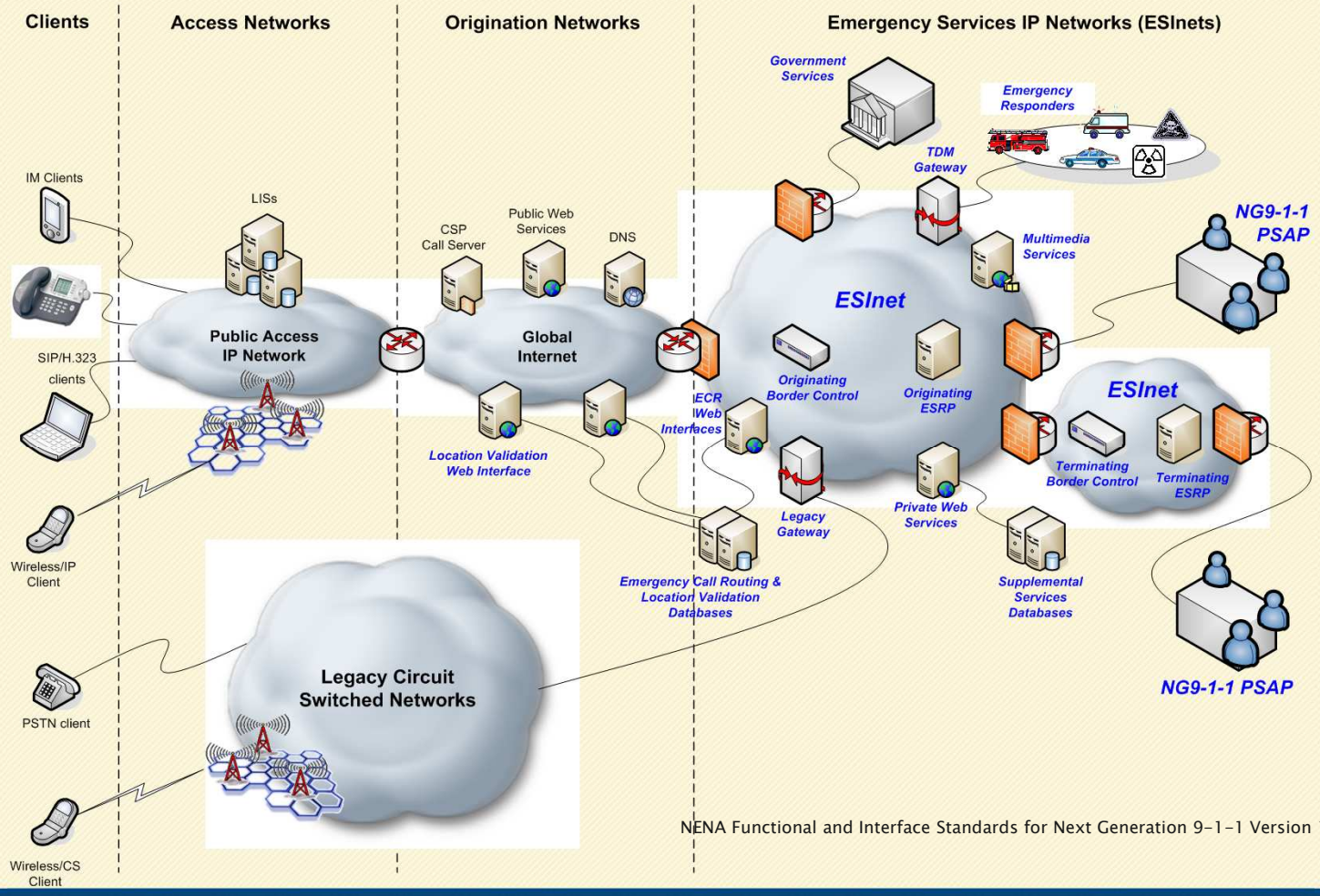


TSAG

TRANSPORTATION SAFETY ADVANCEMENT GROUP

Promoting Technology for Public Safety

NG9-1-1



NENA Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3)

EMS RESPONSE AND CAPACITY

- Integrated Ambulance-Based Safety Systems
- Connected Emergency Response Vehicles
- Evidence-based Emergency Vehicle Operations Standards

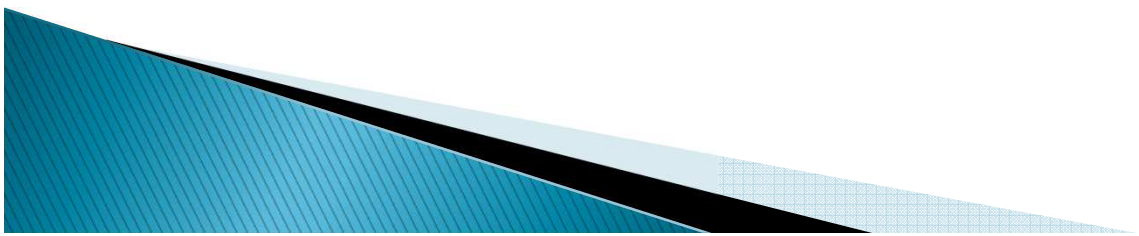
EMS RESPONSE AND CAPACITY

- National EMS Scope of Practice Model and National EMS Education Standards
- Vehicle Extrication Education and Competency Standards
- Regionalization of Emergency Care

MODEL INVENTORY OF EMERGENCY CARE ELEMENTS

MODEL INVENTORY OF EMERGENCY CARE ELEMENTS ("MIECE")

- Q: "If a mass casualty incident happened on this stretch of highway, what RESOURCES could we expect to be available?
- Common, defined measurement system
- Geographically focused
- Allows for comparison between areas



MIECE Category 1: Personnel

MIECE Category 2: Transportation

MIECE Category 3: Equipment

MIECE Category 4:

Public Safety Answering Points and Communications

MIECE Category 5: Medical Facilities

MIECE Category 6: "OTHER"

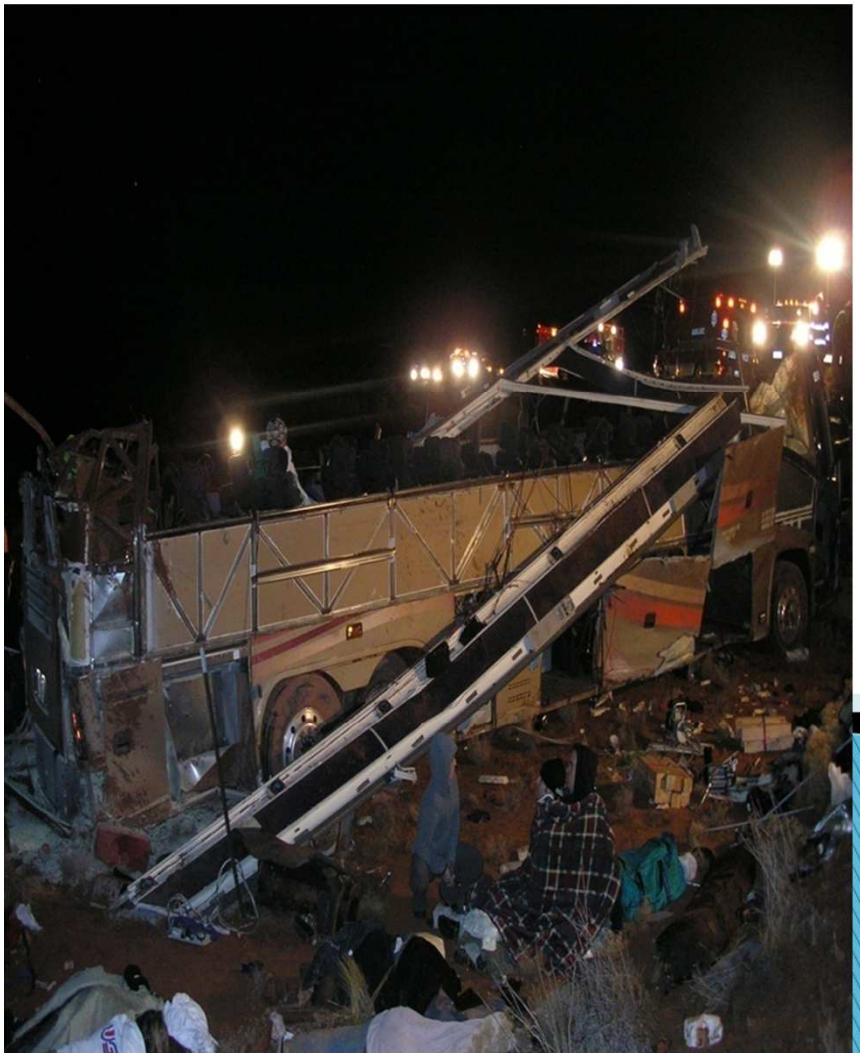
80
Carson City
15
40

84
Salt Lake City
Cheyenne
80
15
70
Denver
25

ON SCENE MEDICAL CARE

- Field Triage Decision Scheme: The National Trauma Triage Protocol
- The National Unified Goal for Traffic Incident Management

EMS INCIDENT RESPONSE AND READINESS ASSESSMENT



EMS INCIDENT RESPONSE & READINESS ASSESSMENT

- "What preparation/planning would we be doing in advance of a mass casualty incident on this stretch of highway in order to be optimally prepared?"
- Scale of responses from "unknown" to "none" to "awesome"
- Activity focused
- Allows for identification of opportunities for improvement

EIRRA Components

- PERSONNEL
- INFRASTRUCTURE
- EMERGENCY CARE SYSTEM
- PUBLIC AWARENESS AND NOTIFICATION

EIRRA Components

- EVALUATION
- MASS CASUALTY PLANNING
- GOVERNANCE
- ADDENDUM – STATE LEVEL

INFRASTRUCTURE – Transportation Operations

- Route Access & Awareness
- Access Control
- Vehicle and Personnel Staging
- Designated Landing Zones
- Transport of Special Equipment and Supplies

INFRASTRUCTURE – Technology/ Intelligence Sharing for Situational Awareness/Connected Vehicles

- Route availability/GPS
- Congestion
- Other Incidents
- Remote Weather Information Systems (RWIS)
- Advanced Automatic Crash Notification (AACN)
- Automatic EMS Vehicle Location Identification (AVL)

EIRRA: Many Uses

- Guidelines to identify areas of improvement and measure progress over time
- Can be used at the state, regional or local level
- Doubles for all-hazards preparedness assessment
- Can be used to identify needs for grants (DHS, 402, HSIP, etc.)

PRINCE GEORGE'S CO.
FIRE / EMS DEPARTMEN

PATIENT TRANSPORTATION PARADIGMS

- Engineering and Design Standards for Ambulances
- Helicopter EMS Utilization Criteria
- Ambulance Access to Intelligent Transportation Systems (ITS) Infrastructure

Boise
Auto Mall
Franklin Rd.
City Center
DETOUR
CHINESE BUFFET

DEFINITIVE CARE: HOSPITAL AND SPECIALITY CARE INFRASTRUCTURE

- Trauma Systems
- Prehospital and Interfacility Telemedicine Applications

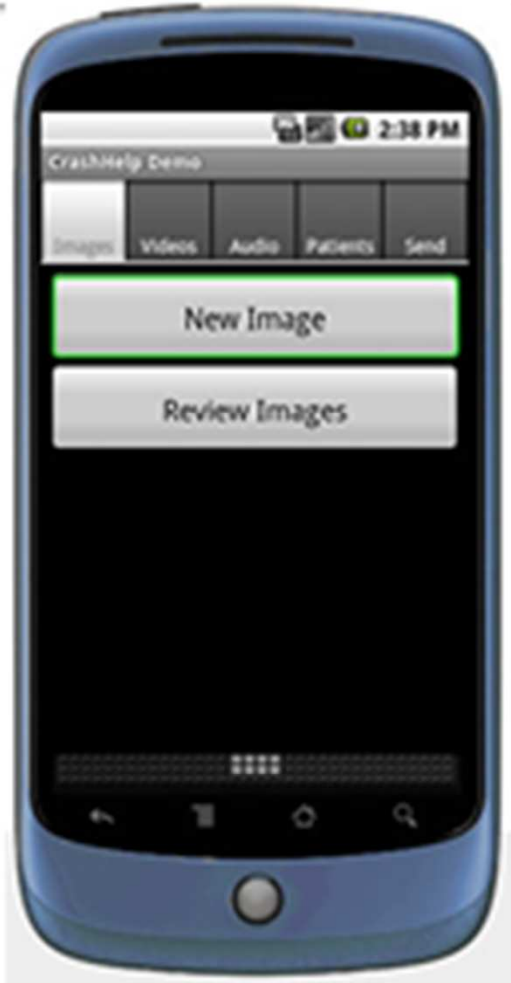
CrashHelp System Prototype

For: EMT's / Paramedics in the field
Google Android Compatible Phone
Android Application

For: Emergency Department / Trauma Center
Web based interface

Mobile Phone Application

- Take Pictures and Video



TIME Magazine
March 25, 2013

10 BIG IDEAS — HEALTH CARE

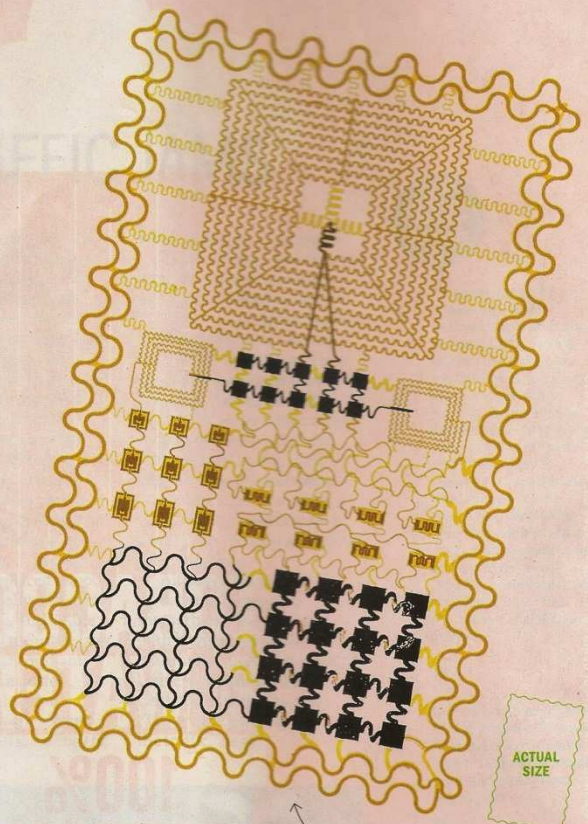
WEAR YOUR DOCTOR

BY ALEXANDRA SIFFERLIN

MONITORING PATIENTS USUALLY REQUIRES visits to the doctor, invasive tests and bulky, expensive devices. But what if getting a check-up were as simple as slapping on a Band-Aid?

Such is the potential of bioelectronics, an emerging field whose leaders are developing small, wearable, wi-fi-enabled sensors that can detect all kinds of vital information—heart rate, body temperature, hydration levels—and relay them to your doctor or your smartphone in real time. Once patients have the big data about their bodies, the thinking goes, they can be proactive about their health, cut care costs and foster better relationships with their doctors. "We want to change the world," proclaims David Icke, CEO of bioelectronics firm MC10, which is leading the health-sensor charge.

He's got a ways to go. Although consumers have embraced attachable devices like Fitbit, a digital pedometer, bioelectronics is for now a much smaller market. Most of its game-changing sensors—like the one that can assess concussion risk and measure skin properties—are in development or just on the cusp of commercial availability. Still, researchers at firms around the world are working hard to make them as comfortable and affordable as possible. The price of MC10 sensors is typically $1 to $10. Which means the most cost-effective doctor could be one that's with you all the time.



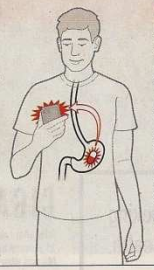
The chip components of MC10's sensors are flexible and ultra-thin; some are only one-fifth the width of a human hair

WHAT SENSORS CAN DO

1 CHECK YOUR VITALS
Once patients affix Preventice's BodyGuardian sensor to themselves, it collects a wealth of data—pulse, respiration rate, activity levels—and alerts a doctor if anything is off base.

2 PREVENT CONCUSSIONS
A helmet sensor developed by Reebok and tech firm MC10 analyzes head impacts during sports play and flashes a light when players get hit too hard, so they will know to take a break.

3 TRACK YOUR MEDICINE ▶
Proteus Digital Health is developing a grain-of-sand-size sensor powered by stomach fluid that could be swallowed as a pill and then relay information to a smartphone about the effects of a particular drug.



4 IMPROVE ATHLETIC PERFORMANCE
Another MC10 sensor, stuck on like a Band-Aid, sends real-time hydration levels to athletes' smartphones so they know exactly when and how much they should drink.

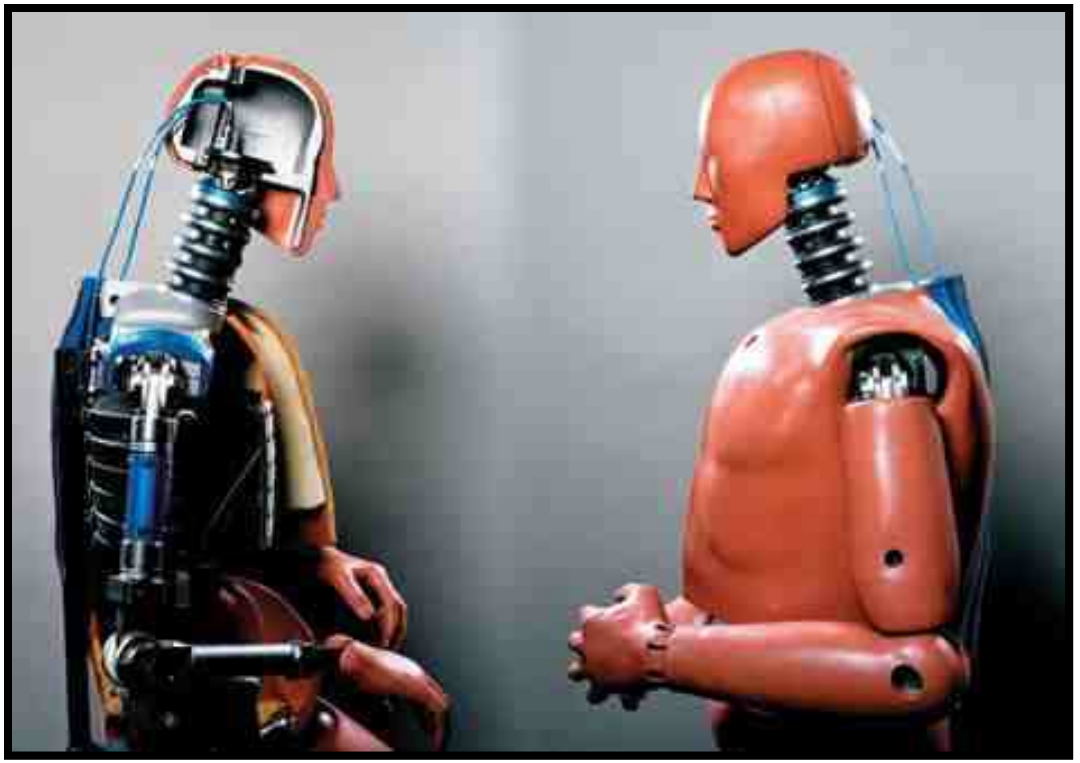
5 NURSE YOUR WOUNDS
John Rogers, a researcher at the University of Illinois, is developing tiny, dissolvable sensors that can generate heat near surgical incisions to prevent infection.

6 KEEP SKIN HEALTHY
A translucent sensor developed by MC10 can be stuck on to check users' UV-exposure levels while they sleep and recommend the best moisturizers.

CROSSCUTTING STRATEGIES:

- National EMS Information System
- Hospital Discharge Databases and/or Trauma Registries
- Records Linkage

SUMMARY: the 4th E

- Until the other 3 Es are 100% effective, EMS is the only hope the patients have
- Potential improvements through EMS cross many boundaries
- Technology an extremely promising area if EMS is considered
- Exploit your centers of excellence!

Dia Gainor
Dia@NASEMSO.org
www.nasemso.org
208-861-4841